

Activity C: What happens to the wetlands if the shoreline migrates?

As temperatures rise, the water shoreline will fall. With that decrease in the water levels, some wetlands may not be capable of migrating with the shoreline, eliminating the important factors like species habitat, nutrient filtering, and flood protection that wetlands contribute.

Earth System Understandings

This activity focuses primarily on ESU 3 (scientific methods and technology), 4 (interactions), and 5 (change through time).

Scenario Reference

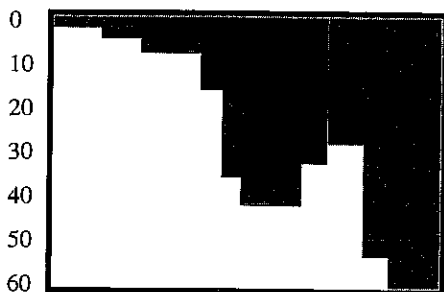
#6, What are the implications of low water levels in Great Lakes estuaries?

Notes

To create a vertical profile students should:

1. Draw a straight line across the section of the map that they want to indicate a profile. (The line should not be along a certain depth but across several depths, preferably from the shore towards the center of the lake.)
2. Draw a line on a sheet of graph paper that represents the straight line on the map.
3. Record the distance between changes in depth on the line across the map and transfer those distances to the line on the graph paper.
4. Graph the different depths (as shown below) at the appropriate distance intervals. This will create a rough picture of the steepness of the underwater slope.

Water
Surface



OBJECTIVES

After completing this activity, students will be able to:

- Critically interpret map data.
- Discuss the mechanisms by which shorelines migrate.

MATERIALS

- topographic map sections or other maps of nearby shoreline areas (one example given) having some wetlands
- graph paper, 2 pieces for each group
- ruler and pencil

PROCEDURE

1. Divide the class into working groups comprised of three to four students. Ask each group to examine one or two different topographic maps and identify the wetland near the shoreline in each, using the map's key.
2. Each working group draws a vertical profile of each of the sectioned topographic maps.
3. Discuss the physical and biological factors that would influence how well a wetland would successfully follow a migrating shoreline. This would include such things as the angle of shore slope, water action (waves), types of sediments/substrates, general ability of vegetation to establish roots, speed of water dropping.
4. Discuss why a shoreline would migrate (making sure to introduce the cause of increased evaporation from climate warming).

REVIEW QUESTION

1. How could global warming play a role in shoreline migration?
2. What shoreline characteristics must exist for a wetland to successfully migrate with a shoreline?

EXTENSION

Ask each student to choose a plant or animal species that would be found in a wetland area. They should write a poem that expresses their knowledge and feelings about that organism. Students should also illustrate the organism as it exists in its wetland environment. Ask students to tell the class about the organism they have chosen and share the poems and drawings they have done. Small groups and poster sessions are good ways for sharing work.

Answers to Review Questions

Global warming is predicted to lower the level of the Great Lakes from 1 to 3 meters by the year 2025. For a wetland to migrate successfully, the slope of the land must be very gentle, and the change must occur slowly enough to allow sediments to accumulate.

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